IN THE CLAIMS

1. (Currently Amended) A method for transmitting data <u>in an IP network</u> according to a <u>source and destination</u> flow table, a flow key, and one or more variables comprising:

   receiving a data transmission <u>in an IP network</u>;

   extracting at least one field from a header of the data transmission;

   <u>forming a combined, source/destination address entry based on the extracted at least one field</u>;

   determining a most granular bit-value mask corresponding to the <u>combined, source/destination address entry</u> ~~at least one field~~ from a mask table having a plurality of bit-value masks<u>, wherein the plurality of bit-value masks include a plurality of granularities corresponding to each of the plurality of fields in the header</u>;

   applying the determined bit-value mask to the <u>combined, source/destination address entry</u> ~~at least one field~~;

   forming [[the]] <u>a source and destination</u> flow key based on the application of the determined bit-value mask to <u>combined, source/destination address entry</u> ~~at least one field~~;

   indexing the <u>source and destination</u> flow table with reference to the masked flow key;

   looking up a flow entry in the indexed <u>source and destination</u> flow table; and

   transmitting data <u>in the IP network</u> according to the flow entry.

2. (Previously Presented) The method according to claim 1, further comprising:

   extracting a plurality of fields from a header of the data transmission;

determining a most granular bit-value mask corresponding to each of the plurality

of fields from a plurality of mask tables, wherein each of the plurality of mask tables

includes a plurality of bit-value masks;

applying the determined bit-value mask to each of the plurality of fields; and

forming the flow key based on the application of the determined bit-value masks

to the plurality of field.

3. (Previously Presented)   The method according to claim 1, further comprising:

if no bit-value mask in a mask table corresponds to the at least one extracted

field, no mask is applied to the at least one field.

4. (Previously Presented)   The method according to claim 3, further comprising:

if no flow entry corresponds to the formed flow key, a default value is used for the

flow entry.

5. (Previously Presented)   The method according to claim 1, wherein determining a

most granular bit-value mask includes performing a longest prefix match for the at least

one field.

6. (New)   The method according to claim 1, wherein the at least one field includes at

least one selected from a group consisting of a source port, a destination port, a source

IP address, and a destination IP address.

7. (Previously Presented)   The method according to claim 1, wherein the mask table includes at least one selected from a group consisting of an address mask table and a port mask table.

8. (Previously Presented)   The method according to claim 1, further comprising:

entering a bit-value mask in the mask table by a service provider.

9. (Previously Presented)   The method according to claim 1, wherein the bit-value mask corresponds to a range of a plurality of subscribers to a service.

10. (Previously Presented) The method according to claim 9, wherein the plurality of subscribers includes at least one selected from a group consisting of network hosts and a subnetwork.

11. (Previously Presented) The method according to claim 1, wherein the bit-value mask corresponds to at least one network application.

12. (Previously Presented) The method according to claim 1, wherein the flow entry includes transmission information.

13. (Previously Presented) The method according to claim 12, wherein the transmission information includes at least one selected from a group consisting of application specific qualities an service specific qualities.

14. (Previously Presented) The method according to claim 13, wherein the transmission information includes at least one selected from a group consisting of policy, quality of service, and latency.

15. (Currently Amended)   A system for transmitting data according to a flow table, a flow key, and one or more variables, the system comprising:

a receiving unit configured to receive a data transmission in an IP network;

an extraction unit configured to extract at least one field from a header of the data transmission;

an address entry unit configured to form a combined, source/destination address from the extracted at least one field;

a mask table including a plurality of bit-value masks, wherein the plurality of bit-value masks include a plurality of granularities corresponding to each of the plurality of fields in the header;

a masking unit configured to determine a most granular bit-value mask corresponding to the combined, source/destination address at least one field from the mask table, apply the determined bit-value mask to the combined, source/destination address at least one field, and output a masked flow key;

a flow table indexed with reference to the masked flow key; and

a transmitter configured to transmit the data transmission in an IP network according to a flow entry in the flow table corresponding to the masked flow key of the data transmission.

16. (Previously Presented) The system according to claim 15, further comprising:

a plurality of mask tables, each including a plurality of bit-value masks.

17. (Previously Presented) The system according to claim 15, wherein the masking unit is configured to determine a most granular bit-value mask by performing a longest prefix match for the at least one field.

18. (Previously Presented) The system according to claim 15, wherein the at least one field includes at least one selected from a group consisting of a source port, a destination port, a source IP address, and a destination IP address.

19. (Previously Presented) The method according to claim 15, wherein the mask table includes at least one selected from a group consisting of an address mask table and a port mask table.

20. (Previously Presented) The method according to claim 15, wherein the bit value mask is configured to allow at least one bit-value mask to be entered by a service provider.